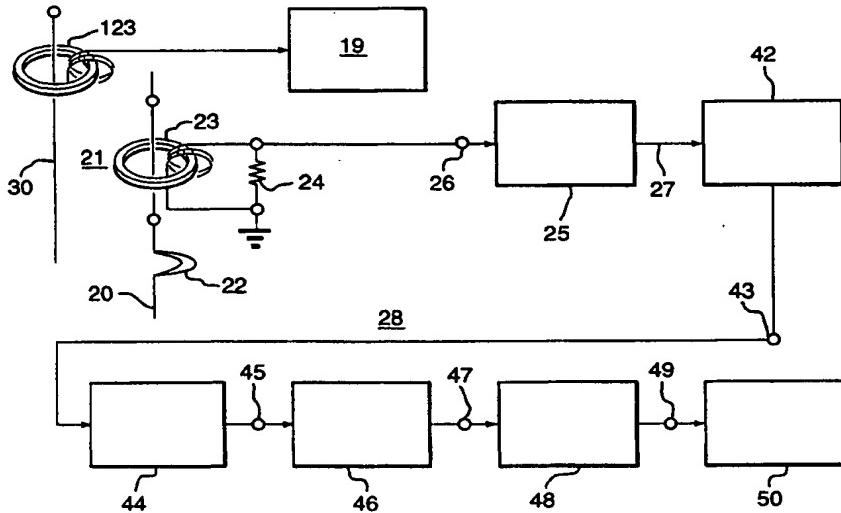




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## (54) Title: ELECTRIC ARC MONITORING SYSTEMS



## (57) Abstract

Electric arc monitoring is effected by exploiting the discovery that electric arcs are fractal phenomena in that all essential information that signifies "arc" is contained in each fractal subset. These fractal subsets are logarithmically distributed over the arc spectrum. Monitoring of arcs is most advantageously effected on a fractal subset (16) of low logarithmic order where the amplitude is higher pursuant to the 1/f characteristic of electric arcs, where cross-induction among neighboring circuits is lower, and where travel between the arc (12) and the arc signature pickup (23) is longer than at the high frequencies customary for electric arc detection. Fractal subset transformation (17) reduces the danger of false alarms. Arc signature portions may be processed in out of phase paths (242, 342) or treated as modulated carriers (42) for monitoring. Aircraft may be equipped with spark monitoring systems (80) that record (82-86) occurrence of dangerous sparking at different locations (92-96) aboard the aircraft (81).

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